



**Model Number**

**ML6-8-H-60-RT/59/115b/136**

Background suppression sensor with 300 mm fixed cable and 4-pin, M12 x 1 connector

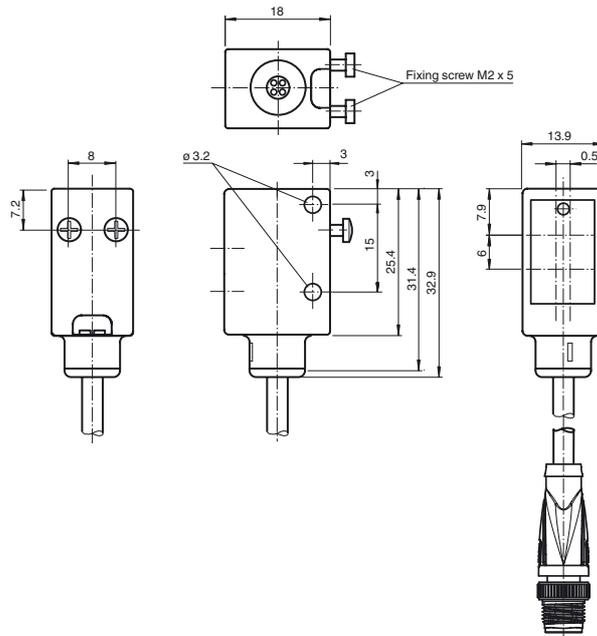
**Features**

- Precise background suppression
- Very small black-white difference
- Small, sharp light spot
- Highly visible LEDs for Power-On, switching status, short-circuit, and undervoltage
- Metal-reinforced fastening holes
- Tamper-proof version with no adjustments
- Push-pull output

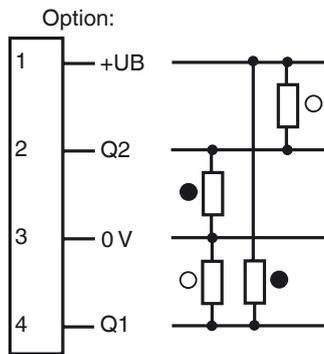
**Product information**

The ML6 series is characterized by a robust, powerful and standard design in a miniature housing. The housing offers IP67/IP69K degree of protection, a food-grade lens, highly visible LEDs and robust all-metal bushings for mounting. Adjustable and tamper-proof sensors with a double push-pull output are available. The sensors have a high ambient light limit. Reflections from the background are suppressed. The unusually small, sharp light spot and the quick response time offer maximum switching precision on object edges. Clearly visible red light sources facilitates alignment. A high-performance fixed focus background suppressor is a useful feature. The sensors are suitable for precise object detection and open up a wide range of application fields.

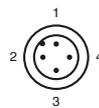
**Dimensions**



**Electrical connection**



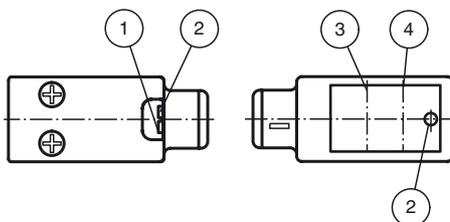
**Pinout**



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

**Indicators/operating means**



1	operating display	green
2	indication of the switching state	yellow
3	receiver axis	
4	emitter axis	

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**Technical data****General specifications**

Detection range	10 ... 60 mm
Detection range max.	10 ... 80 mm
Background suppression	starts from 80 mm
Light source	LED
Light type	modulated visible red light , 660 nm
Black/White difference (6%/90%)	approx. 10 mm
Diameter of the light spot	approx. 4 mm at 60 mm
Angle of divergence	approx. 5 °
Ambient light limit	
Continuous light	40000 Lux
Modulated light	5000 Lux

**Functional safety related parameters**

MTTF <sub>d</sub>	1940 a
Mission Time (T <sub>M</sub> )	20 a
Diagnostic Coverage (DC)	0 %

**Indicators/operating means**

Operation indicator	LED green, statically lit Power on , Undervoltage indicator: Green LED, pulsing (approx. 0.8 Hz) , short-circuit : LED green flashing (approx. 4 Hz)
Function indicator	LED yellow: lights when object is detected

**Electrical specifications**

Operating voltage	U <sub>B</sub>	10 ... 30 V DC
Ripple		10 %
No-load supply current	I <sub>0</sub>	< 25 mA

**Output**

Switching type	light/dark on, programmable	
Signal output	2 push-pull (4 in 1) outputs, complementary, short-circuit proof, reverse polarity protected	
Switching voltage	max. 30 V DC	
Switching current	max. 100 mA	
Voltage drop	U <sub>d</sub>	≤ 2.5 V DC
Switching frequency	f	1000 Hz
Response time		0.5 ms

**Conformity**

Product standard	EN 60947-5-2
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**Ambient conditions**

Ambient temperature	-20 ... 60 °C (-4 ... 140 °F)
Storage temperature	-20 ... 75 °C (-4 ... 167 °F)

**Mechanical specifications**

Housing width	13.9 mm
Housing height	31.4 mm
Housing depth	18 mm
Degree of protection	IP67 / IP69K
Connection	300 mm fixed cable with M12 x 1, 4-pin connector
Material	
Housing	ABS
Optical face	PMMA
Mass	approx. 10 g

**Compliance with standards and directives**

Standard conformity	
Shock and impact resistance	IEC / EN 60068. half-sine, 40 g in each X, Y and Z directions
Vibration resistance	IEC / EN 60068-2-6. Sinus. 10 -150 Hz, 5 g in each X, Y and Z directions

**Approvals and certificates**

UL approval	cULus Listed
CCC approval	CCC approval / marking not required for products rated ≤36 V

**Accessories****OMH-4.1**

Mounting Clamp

**OMH-ML6**

Mounting bracket

**OMH-ML6-U**

Mounting bracket

**OMH-ML6-Z**

Mounting bracket

**V1-G-2M-PVC**

Female cordset, M12, 4-pin, PVC cable

**V1-G-5M-PUR**

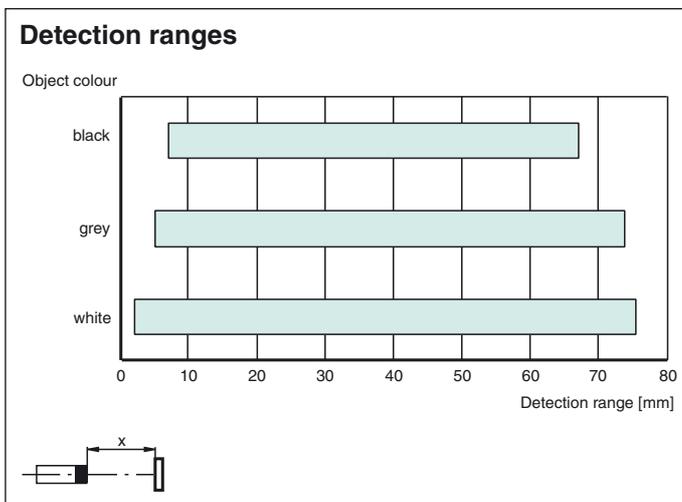
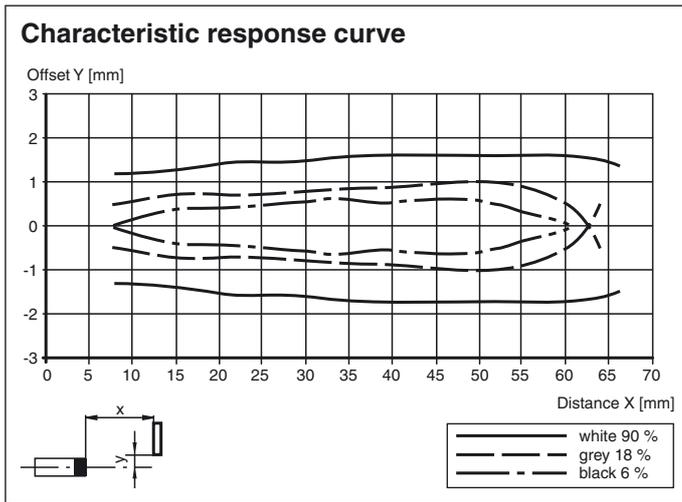
Female cordset, M12, 4-pin, PUR cable

**V1-W-5M-PUR**

Female cordset, M12, 4-pin, PUR cable

Other suitable accessories can be found at [www.pepperl-fuchs.com](http://www.pepperl-fuchs.com)

Curves/Diagrams



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Refer to "General Notes Relating to Pepperl+Fuchs Product Information".